



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,049	11/13/2001	Yoji Okazaki	Q67279	6352

7590 08/05/2003

SUGHRUE MION, PLLC
2100 Pennsylvania Avenue, NW
Washington, DC 20037-3213

EXAMINER

DANG, HUNG XUAN

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 08/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/987,049

Applicant(s)

OKAZAKI ET AL.

Examiner

Hung X Dang

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

1. Applicant's arguments with respect to claim 6 have been reviewed by the examiner. In the previous Office action, claim 6 was rejected under 35 U.S.C. §103(a) as being unpatentable over the teachings of Aubusson (WO 90/12387). In particular, the examiner asserted therein that it would have been obvious to use the red florescent material of claim 6, citing OFFICIAL NOTICE. In response, applicant requested that the examiner supply a reference teaching the red florescent material as described in claim 6. Applicant further maintains that, "absent such a teaching in the art, claim 6 is in condition for allowance". In reply to applicant's request, the aforesaid reference is cited herein by the examiner in regard to the rejection of claim (amended) 6 under 35 U.S.C. §103(a). A copy of the cited document is being provided for applicant along with the current Office action.

Indicated Allowability Withdrawn

2. In the previous Office action, independent claim 1 was rejected under 35 U.S.C. § 102(a) as being clearly anticipated by Auburn (WO 90/12387). Claims 2-5 and 7-16 (which depend from the rejected claim 1) accordingly, were objected to as being dependent upon the aforesaid rejected base claim. Additionally, the examiner indicated therein that claims 2-5 and 7-16 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant thus amended claims 2-5 and 7-16, which are now pending in the instant application. The examiner, however, has reviewed/reconsidered the criticality of each individual feature/limitation recited by the claims (amended) 2-5 and 7-16. As a result of the examiner's review, the aforesaid indication of allowability of claims (amended) 2-5 and 7-16 is now withdrawn. The examiner apologizes for any inconvenience that might be associated with the withdrawal of the aforesaid indication of allowability. Detailed rejections of aforementioned claims are included in the present Office action.

Objections - Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, all of the features recited for the laser light sources of claims (amended) 4 and 5 must be shown or the aforesaid feature(s) canceled from the claim(s). This includes: a semiconductor laser device having an active layer made of a GaN-type material so as to emit excitation light; a surface emitting semiconductor laser device including an active layer made of a GaN-type material and formed on a substrate; and [where said device] is excited by the excitation laser light to emit said ultraviolet laser light (Claim 4, Lines 13-18). And additionally, a fiber laser device including an excitation light source and an optical fiber doped with at least one rare-earth element which emits laser beam when excited by said excitation light, where the at least one rare-earth element includes Pr³⁺; and a wavelength conversion element that converts said laser beam into ultraviolet laser light (Claim 5, Lines 13-18). No new matter should be entered.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U. S. C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim (amended) 4 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a color laser display apparatus comprising a laser light source which emits laser light, does not reasonably provide enablement for said apparatus when said laser light source includes a semiconductor laser device having an active layer made of a GaN-type material so as to emit excitation light (Claim 4, Line 14-15), and a surface emitting semiconductor laser device having an active layer made of a GaN-type material and formed on a substrate, and is excited by the excitation light to emit said laser light (Claim 4, Line 16-18). Applicant's specification simply states that: "The laser light source may be a laser device including a semiconductor laser device having an active layer made of a GaN-type material so as to emit excitation laser light, and a surface emitting semiconductor laser device which has an active layer made of a GaN-type material and formed on a substrate. The surface emitting semiconductor

laser device is excited by the excitation light to emit the ultraviolet laser light" (Page 5, Line 613). There is no apparent discussion therein, however, regarding the structure of such a two-part "laser light source" (e.g. the first part emitting "excitation light"; the second part "formed on a substrate"). Moreover, the examiner can not determine if the aforesaid two-part laser light source is actually drawn to the fiber laser device noted elsewhere in the instant disclosure. In any case, the specification does not appear to contain a level of detail(s) sufficient to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with claim (amended) 4. Applicant is reminded that new matter should not be entered in response to the aforesaid rejection.

6. The following is a quotation of the second paragraph of 35 U. S. C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims (amended) 4 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The aforesaid claims are at least rendered indefinite by the use of the terms "excitation light" (Claim 4, Lines 15; Claim 4, Line 17; Claim 5, Line 14; Claim 5, Line 16) and "ultraviolet laser light" (Claim 4, Line 18; Claim 5, Line 18-19). Said terms are first noted in the specification as "since the excitation light is ultraviolet laser light" (Page 3, Line 25-26) in connection with visible-to-ultraviolet wavelength conversion laser light sources. Subsequently in the present specification applicant notes (Page 7, Line 25-Page 8, Line 11) that "ultraviolet excitation light is obtained when the semiconductor laser device is made of GaN material". Additionally, there is no discussion in the instant disclosure regarding the identity or structure of such a two-part structure wherein the first part emits "excitation light" and a second part emits "ultraviolet laser light", as noted above in the rejection of claim (amended) 4 above under 35 U.S.C. 112, first paragraph (here, it should be noted that the present indefiniteness only exacerbates the lack of enablement noted above in regard to claim 4). Accordingly, the distinction between the terms "excitation light" and "ultraviolet laser light" is unclear, and the use of said terms renders each of claims (amended) 4-5 indefinite.' The indefiniteness could be removed from the aforesaid claims by clearly defining each of the aforesaid terms. Again, no new matter should be entered.

Claim Rejections - 35 U.S.C § 103

8. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim (amended) 2 is rejected under 35 U.S.C. §103(a) as being unpatentable over Aubusson (WO 90/12387), in view of Van de Walle (US 5,828,684 A). In particular, Aubusson teaches (pg. 3, ln. 34-pg. 4, ln. 32) a color laser display apparatus (FIG. 1) comprising a laser light source 11 which emits ultraviolet light 12; a modulation unit 13 which modulates said ultraviolet light; a display unit which includes a fluorescent screen 18; and a scanning unit 14-17 which two-dimensionally scans said fluorescent screen with said ultraviolet light; said fluorescent screen 18 including for each pixel, red fluorescent material 18R which emits red light in response to said ultraviolet laser light, green fluorescent material 18G which emits green light in response to said ultraviolet laser light, and blue fluorescent material 18B which emits blue light in response to said ultraviolet laser light. Aubusson does not expressly disclose the aforesaid apparatus "wherein said light source includes a semiconductor laser device having an active layer made of a GaN-type material" (Claim 2, Line 11-12). The use of a semiconductor laser device having an active layer made of a GaN-type material for the purpose of generating ultraviolet light was well-known in the art at the time invention, however. For example, Van de Walle discloses (col. 6, ln. 54-col. 7, ln. 3) a semiconductor structure with an active layer of GaN with an operating output wavelength in the ultraviolet region of the spectrum. Moreover, at the time of the instant invention, there were numerous other well-known art-equivalent ultraviolet laser light sources available; including the rare-earth doped optical-fiber laser devices which are discussed in applicant's specification, as being one of a number of different laser sources that could be used in the present invention (Page 5, Line 18-Page 6, Line 8). Since applicant has demonstrated no unexpected results related to the selection of, and has set forth no critical reason for selecting a semiconductor structure with an active layer of GaN (e.g. as opposed to the aforesaid rare-earth doped optical-fiber (or any other) ultraviolet laser, the aforesaid structure with an active layer of GaN solves no stated problem(s), and thus the selection of any one of said ultraviolet laser

sources is therefore an obvious matter of design choice to one of ordinary skill in the art. In re Kuhle, 188 USPQ 7 (CCPA 1975). Claim 2 is therefore unpatentable over Aubusson in view of Van de Walle.

10. Claim 3 is rejected under 35 U.S.C. §103(a) as being unpatentable over Aubusson (WO 90/12387), in view of Fukunaga (US 6,014,388 A); and/or Takiguchi et al. (US 5,007,107 A); and/or Koch et al. (US 5,413,884 A); and/or Kahn et al. (US 5,321,713 A). In particular, Aubusson teaches (pg. 3, In. 34-pg. 4, In. 32) all of the features/limitations of applicant's claim (amended) 2 from which claim 3 depends including a color laser display apparatus (FIG. 1) comprising a laser light source 11 which emits ultraviolet light 12; a modulation unit 13 which modulates said ultraviolet light; a display unit which includes a fluorescent screen 18; and a scanning unit 14-17 which two-dimensionally scans said fluorescent screen with said ultraviolet light; said fluorescent screen 18 including for each pixel, red fluorescent material 18R which emits red light in response to said ultraviolet laser light, green fluorescent material 18G which emits green light in response to said ultraviolet laser light, and blue fluorescent material 18B which emits blue light in response to said ultraviolet laser light. Aubusson does not expressly disclose "a color laser display apparatus of claim 2 wherein said semiconductor laser device that is any one of a tapered-amplifier, a a-DFB, a phase synchronization array, or a surface emitting type" (Claim 3, Line 1-4). The use of any one of a tapered-amplifier, a a-DFB, a phase synchronization array, or a surface emitting type for the purpose of generating ultraviolet light was wellknown in the art at the time invention, however. For example, Fukunaga discloses a taperedamplifier-type semiconductor laser device (col. 2, In. 45-col. 3, In. 14) with an operating output wavelength in the ultraviolet region of the spectrum; Takiguchi et al. discloses a distributed feedback Bragg reflector (DFB) semiconductor laser device (col. 1, In. 6-12); Koch et al. discloses a phase synchronization array semiconductor laser device (col. 3, In. 60-col. 5, In, 25); and Kahn et al. discloses a surface emitting GaN/AlN semiconductor laser device with an operating output wavelength in the ultraviolet region of the spectrum (col. 6, In. 5-17). Moreover, at the time of the instant invention, there were numerous other well-known art-equivalent ultraviolet laser light sources available; including the rare-earth doped optical-fiber laser devices which are discussed in applicant's specification, as being one of a number of different laser sources that could be used in the present invention (Page 5, Line 18-Page 6, Line 8). Since applicant has demonstrated no unexpected results related to the selection of, and has set forth no critical reason

for selecting a semiconductor laser device that is any one of a tapered-amplifier type, or an aDFB type, or a phase synchronization array type, or a surface emitting type, or any one of any other well-known type of solid state ultraviolet laser for the purpose of generating ultraviolet light, the selection of any one of the aforesaid laser sources is therefore simply an obvious matter of design choice to one of ordinary skill in the art. In re Kuhle, 188 USPQ 7 (CCPA 1975). Claim 3 is therefore unpatentable over Aubusson in view of Fukunaga, and/or Takiguchi et al., and/or Koch et al., and/or Kahn et al.

11. Claim (amended) 5 is rejected under 35 U.S.C. §103(a) as being unpatentable over Aubusson (WO 90/12387), in view of Goldberg et al. (US 5,909,306A). In particular, Aubusson teaches (pg. 3, In. 34-pg. 4, In. 32) all of the features/limitations of applicant's claim (amended) 2 from which claim 3 depends including a color laser display apparatus (FIG. 1) comprising a laser light source 11 which emits ultraviolet light 12; a modulation unit 13 which modulates said ultraviolet light; a display unit which includes a fluorescent screen 18; and a scanning unit 14-17 which two-dimensionally scans said fluorescent screen with said ultraviolet light; said fluorescent screen 18 including for each pixel, red fluorescent material 18R which emits red light in response to said ultraviolet laser light, green fluorescent material 18G which emits green light in response to said ultraviolet laser light, and blue fluorescent material 18B which emits blue light in response to said ultraviolet laser light. Aubusson does not expressly disclose "a fiber laser device including an excitation light source and an optical fiber doped with at least one rare-earth element which emits laser beam when excited by said excitation light, where the at least one rare-earth element includes Pr³⁺, and a wavelength conversion element that converts said laser beam into ultraviolet laser light (Claim 5, Line 11-16). Such fiber laser devices were well known in the art at the time invention, however. For example, Goldberg et al discloses a fiber laser device including an excitation light source and an optical fiber doped with at least one rare earth element which emits laser beam when excited by said excitation light, where the at least one rare-earth element includes Pr³⁺, and a wavelength conversion element that converts said laser beam into ultraviolet laser light (abstract, col. 2, In. 22-55; col. 4, In. 47-54). Since applicant has demonstrated no unexpected results related to the selection of, and has set forth no critical reason for selecting a fiber laser device including an excitation light source, and an optical fiber doped with at least one rare-earth element which emits laser beam when excited by said excitation light, where the at least one rare-earth element includes Pr³⁺, and a wavelength conversion

sion element that converts said laser beam into ultraviolet laser light; the selection of the aforesaid fiber laser device, or any one of any other well-known type of solid state ultraviolet laser, is therefore simply an obvious matter of design choice to one of ordinary skill in the art. In re Kuhle, 188 USPQ 7 (CCPA 1975). Claim (amended) 5 is therefore unpatentable over Aubusson in view of Goldberg et al.

12. Claim (amended) 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Aubusson (WO 90/12387) in view of Faria et al. (U.S. Patent No. 3,665,575). Aubusson discloses a color laser display apparatus (pg. 3, In. 34-pg. 4, In. 32; FIG. 1) comprising: a laser light source 11 which emits ultraviolet light 12; a modulation unit 13 which modulates said ultraviolet light; a display unit which includes a fluorescent screen 18; and a scanning unit 14-17 which twodimensionally scans said fluorescent screen with said ultraviolet light; said fluorescent screen 18 including for each pixel, red fluorescent material 18R which emits red light in response to said ultraviolet laser light, green fluorescent material 18G which emits green light in response to said ultraviolet laser light, and blue fluorescent material 18B which emits blue light in response to said ultraviolet laser light. Aubusson further discloses that said green fluorescent material is ZnS:Cu, said blue fluorescent material is ZnS:Ag, and said red fluorescent material is YZOZS:Eu. Aubusson does not expressly disclose red fluorescent material comprising ZnCdS:Ag. In the previous Office action the examiner asserted: "it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a red fluorescent material comprising ZnCdS the invention(s) of Aubusson since the examiner takes OFFICIAL NOTICE of the general equivalence of the two organic phosphors YZOZS and/or ZnCdS for their use in the video-display/color television art, and the selection of any of these known equivalents as a red fluorescent phosphor would be within the level of ordinary skill in the art. A supporting reference, and a discussion of the rationale underlying the aforementioned OFFICIAL NOTICE follows. Faria et al. discloses cathodeluminescent phosphor compositions (e.g. phosphor combinations for use in color television displays wherein said compositions are irradiated/stimulated by relatively low-energy electrons) including yttrium oxysulfide (YZOZS) and zinc cadmium sulfide (ZnCdS). Faria et al. expressly notes therein that "a red-emitting phosphor recently used [emphasis added] are phosphors having certain rare earth hosts such as *infer alia* YZOZS" (Col. 1, In 49-52) and, "another red-emitting phosphor previously used was ZnCdS" (col. 1, In 52-54). Faria et al. thus teaches the equivalence of the organic phosphors YZOZS and ZnCdS in cathodelumi-

nescent phosphor compositions. Aubusson, in turn, provides the motivation for using a redemitting cathodeluminescent ZnCdS phosphor (according to Faria et al.) in a laser display apparatus. To this end, Aubusson expressly teaches the general equivalence of color television and laser display phosphors: "It has been surprisingly been found that the phosphors used in conventional colour television sets are suitable for use in the present invention" (pg. 8, In. 30-32). Thus, the selection of any of these known equivalents (including Y2O2S and ZnCdS) as a red fluorescent phosphor would be an obvious design choice that was well within the level of ordinary skill in the art at the time of invention. For this reason, applicant's claim (amended) 6 is unpatentable over Aubusson, in view of Faria et al.

13. Claims 7 and 11 is rejected under 35 U.S.C. §103(a) as being unpatentable over Aubusson (WO 90/12387) in view of Montagu et al. (EO/IR Handbook, Vol. 3, 1993). Aubusson discloses a color laser display apparatus (pg. 3, In. 34-pg. 4, In. 32; FIG. 1) comprising: a laser light source I1 which emits ultraviolet light 12; a modulation unit 13 which modulates said ultraviolet light; a display unit which includes a fluorescent screen 18; and a scanning unit 14-17 which two-dimensionally scans said fluorescent screen with said ultraviolet light; said fluorescent screen 18 including for each pixel, red fluorescent material 18R which emits red light in response to said ultraviolet laser light, green fluorescent material 18G which emits green light in response to said ultraviolet laser light, and blue fluorescent material 18B which emits blue light in response to said ultraviolet laser light. Aubusson further discloses that said scanning unit 16/17 includes a polygon mirror 16 for deflecting the ultraviolet laser light in the horizontal direction pg. 5, In. 14-16). Aubusson does not disclose a "first galvanometer for directing the ultraviolet light", and recites another polygon mirror 14 as an equivalent means for deflecting said light. Montagu et al. presents an extensive state-of-art summary of optomechanical scanning applications, techniques, and devices including numerous examples of rotating polygon and galvanometric scanners (pp. 125-154) which were all notoriously well-known at the time of the present invention. Moreover, applicant's specification's lacks any showing of criticality or unexpected results associated with the use of said first galvanometer, and here too, the examiner is of the opinion that to modify the laser display apparatus of Aubusson to include a "first galvanometer for directing the ultraviolet light" would simply have been an obvious matter of design choice. Claim 7 is therefore unpatentable over Aubusson in view of Montagu et al.

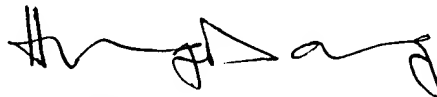
14. Claims 8-10, 12-14 and re rejected under 35 U.S.C. §103(a) as being unpatentable over Aubusson (WO 90/12387) in view of Montagu et al. (EO/IR Handbook, Vol. 3, 1993) and Goldberg et al. (US 5,909,306A). In regard to claim (new) 8, Aubusson teaches all of the non-obvious features/limitations of independent claim (new) 7 from which claim 8 depends. Aubusson further teaches an acousto-optical deflector for correcting irregularity in a raster scan pitch, but does not expressly teach the use of an electro-optical deflector for the same purpose; or relay lenses for condensing and relaying ultraviolet light as required by claim (new) 8. Goldberg et al. teaches the well-known functional equivalence of electro-optical and acousto-optical beam deflectors in applications involving ultraviolet laser light (col. 2, 47-48) and Montagu et al. expressly discloses well-known examples of relay lens scanners (pg. 155). Furthermore, the instant disclosure fails to show any criticality or unexpected results associated with the use of said acousto-optical deflector and/or relay lenses, and accordingly, the examiner is of the opinion that to modify the laser display apparatus of Aubusson to include a "first galvanometer for directing the ultraviolet light", as is well known and commonly used in the art would have been an obvious matter of design choice. In re Kuhle, 188 USPQ 7 (CCPA 1975). Claim (new) 8 is therefore unpatentable over Aubusson, in view of Montagu et al. and Goldberg et al.

15. Claims 15, 16 and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Aubusson (WO 90/12387). In particular, Aubusson teaches (pg. 3, In. 34-pg. 4, In. 32) all of the features/limitations of applicant's claim (amended) 2 from which claim 3 depends including a color laser display apparatus (FIG. 1) comprising a laser light source 11 which emits ultraviolet light 12; a modulation unit 13 which modulates said ultraviolet light; a display unit which includes a fluorescent screen 18; and a scanning unit 14-17 which two-dimensionally scans said fluorescent screen with said ultraviolet light; said fluorescent screen 18 including for each pixel, red fluorescent material 18R which emits red light in response to said ultraviolet laser light, green fluorescent material 18G which emits green light in response to said ultraviolet laser light, and blue fluorescent material 18B which emits blue light in response to said ultraviolet laser light. Aubusson does not expressly disclose that "the laser light source comprises three semiconductor laser devices for emitting three ultraviolet laser beams corresponding to the three primary colors red, green, and blue respectively. Thus, Aubusson discloses the claimed invention except for the additional two lasers noted above. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use three lasers instead of one (e.g. for

increased total power and reduced power density on the pre-scanning optical elements⁹, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Furthermore, the instant disclosure fails to show any criticality or unexpected results associated with the use one, or three semiconductor laser devices for emitting either one, or three, ultraviolet laser beams. Independent claim ⁸new⁹ 9 is therefore unpatentable over Aubusson.

Art Unit: 2873

16. Any inquiry concerning this communication should be directed to Hung X Dang at
telephone number 703-308-0550.

A handwritten signature in black ink, appearing to read 'Hung X Dang', with a stylized, cursive script.

Hung X Dang
Primary Examiner
Art Unit 2873